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EXAMINER

MONBLEAU, DAVIENNE N

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 07/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/915,059

Applicant(s)

KYUSHO ET AL.

Examiner

Davienne Monbleau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-98 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-98 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.



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TECHNOLOGY CENTER 2800**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 and 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 9/26/02 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Specifically, the information on the Japanese Office Action dated 7/23/02 is particularly insufficient for cited references 12 and 13. References 1-11 were considered on the minimal information provided by the Japanese Office Action.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the remote control, plurality of etalon plates, multiplexing and delay unit with a double-pass amplifier and a single-pass amplifier, and multiple laser outputs with third, fourth and fifth harmonics must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-98 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 3, 6, 9, 13, 17, 20, 24, 27, 31, 35, 39, 44, 49, 56, 63, 69, 77, 83 and 91 provide for the use of repair processing, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 1, 3, 6, 9, 13, 17, 20, 24, 27, 31, 35, 39, 44, 49, 56, 63, 69, 77, 83 and 91 ^{could be}~~are~~ rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Regarding Claims 9, 13, 20, 27, 31, 49, 56, 69, 83, and 91, the multiplexing and delaying unit is vague. It is not clear as to how many laser lights are being multiplexed and what is being done to which laser light. Examiner strongly suggests rewording this portion to definitively explain the device.

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Further regarding Claim 91, the amplifying portion of the multiplexing and delaying unit with one beam having double-pass amplification and the other beam having single-pass amplification is not clearly shown in the drawings. A beam splitter (110) creates the two beams and only one beam goes through the amplifier (3).

Regarding Claims 49 and 56, the phrase "one amplified laser light" is unclear since there was no amplification prior to the multiplexing and delaying unit.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6, 7, 9, 10, 11, 13-15, 17, 18, 20-22, 24, 25, 27-29, 31-33, 35, 39, 44, 49, 56, 63, 69, 77, 83, and 91, to the extent taught and understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Rieger et al. (U.S. Patent No. 5,790,574). Regarding Claims 1 and 35, Rieger et al. disclose in Figure 6 a Q-switched mode-locked pulsed laser.

Regarding Claims 3 and 39, Rieger et al. disclose in Figure 6 a Q-switched mode-locked pulsed laser and in Figure 8 an optical modulator (80) to slice a single laser pulse.

Regarding Claims 6 and 44, Rieger et al. disclose in Figure 6 a Q-switched mode-locked pulsed laser, in Figure 8 an optical modulator (80) to slice a single laser pulse, and in Figure 12 an optical amplifier (103).

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Regarding Claims 9 and 49, Rieger et al. disclose in Figure 6 a Q-switched mode-locked pulsed laser and in Figure 8 an optical modulator (80) to slice a single laser pulse and a laser pulse multiplexing and delaying unit. (See also Rieger et al. column 7 lines 45-67).

Regarding Claims 13 and 56, Rieger et al. disclose in Figure 6 a Q-switched mode-locked pulsed laser, in Figure 8 an optical modulator (80) to slice a single laser pulse and a laser pulse multiplexing and delaying unit (see also Rieger et al. column 7 lines 45-67), and in Figure 12 an optical amplifier (103).

Regarding Claims 17 and 63, Rieger et al. disclose in Figure 6 a Q-switched mode-locked pulsed laser, in Figure 8 an optical modulator (80) to slice a single laser pulse, and in Figure 12 a wavelength-converting unit (112).

Regarding Claims 20 and 69, Rieger et al. disclose in Figure 6 a Q-switched mode-locked pulsed laser, in Figure 8 an optical modulator (80) to slice a single laser pulse and a laser pulse multiplexing and delaying unit (see also Rieger et al. column 7 lines 45-67), and in Figure 12 a wavelength converting unit (112).

Regarding Claims 24 and 77, Rieger et al. disclose in Figure 6 a Q-switched mode-locked pulsed laser, in Figure 8 an optical modulator (80) to slice a single laser pulse, and in Figure 12 an optical amplifier (103) and a wavelength converting unit (112).

Regarding Claims 27 and 83, Rieger et al. disclose in Figure 6 a Q-switched mode-locked pulsed laser, in Figure 8 an optical modulator (80) to slice a single laser pulse and a laser pulse multiplexing and delaying unit (see also Rieger et al. column 7 lines 45-67), and in Figure 12 an optical amplifier (103) and a wavelength converting unit (112).

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Regarding Claims 31 and 91, Rieger et al. disclose in Figure 6 a Q-switched mode-locked pulsed laser, in Figure 8 an optical modulator (80) to slice a single laser pulse and a laser pulse multiplexing and delaying unit (see also Rieger et al. column 7 lines 45-67), and in Figure 12 a double-pass optical amplifier (103) and a wavelength converting unit (112).

Regarding Claims 2, 4, 7, 10, 14, 18, 21, 25, 28, and 32, Rieger et al. disclose in column 6 lines 65-67 100 ps pulses.

Regarding Claims 11, 15, 22, 29, and 33, Rieger et al. disclose in column 7 line 55 that the delay is between 100 ps and 10 ns.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5, 8, 12, 16, 19, 23, 26, 30, and 34, to the extent taught and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Rieger et al. (U.S. Patent No.

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5,790,574) in view of Unternahrer et al. (U.S. Patent No. 6,404,787). Rieger et al. do not teach setting the slicing in an arbitrary manner. Unternahrer et al. teach in Figure 1 a laser apparatus for selecting a predetermined number of pulses comprising an optical modulator (128) with a controller (126). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a controller in Rieger et al., as taught by Unternahrer et al. to control optical modulator when slicing pulses. Determining the preferred manner in which it slices (i.e. arbitrary) involves routine skill in the art.

Claims 36, 40, 45, 50, 57, 64, 70, 78, 84, and 92, to the extent taught and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Rieger et al. (U.S. Patent No. 5,790,574) in view of Applicant's cited prior art JP 2-32323. Rieger et al. teach in Figure 6 a q-switched mode-locked pulse laser comprising a resonator, a pumping unit (61), a Nd:YAG laser medium (67), a Q-switching element (73), and a mode-locker (75). Rieger et al. do not teach etalon plates. JP 2-32323 teaches a laser system comprising an etalon plate for selecting a longitudinal mode (see Applicant's cited Japanese Office Action dated 7/23/2002). It would have been obvious to one of ordinary skill in the art at the time of the invention to use an etalon in Rieger et al., as taught by JP 2-32323, to eliminate unwanted modes and have increased stability.

Claims 37, 38, 41, 42, 46, 47, 51, 52, 58, 59, 65, 66, 71, 72, 79, 80, 85, 86, 93, and 94, to the extent taught and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Rieger et al. (U.S. Patent No. 5,790,574) in view of Applicant's cited prior art JP 2-32323, as applied to Claim 36 above, and further in view of Applicant's cited prior art JP 8-160600 and Amada et al. (U.S. Patent No. 5,710,787). Regarding Claims 37, 41, 46, 51, 58, 65, 71, 79, 85,

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and 93, Rieger et al. do not teach a plurality of etalon plates with different thickness. JP 8-160600 teaches a laser system with an etalon system and varying the thickness of the plates to determine the wavelengths (see Applicant's cited Japanese Office Action dated 7/23/2002). It would have been obvious to one of ordinary skill in the art at the time of the invention to alter the thickness of the plates in Rieger et al., as taught by JP 8-160600, to achieve the desired wavelength. Having multiple etalons/plates is mere repetition of parts. Furthermore, interchanging the various plates within the resonator involves routine skill in the art. Rieger et al. also do not teach a remote controller. Amada et al. teach in Figure 1 a remote controller (11) to control the laser (1). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a remote control in Rieger et al., as taught by Amada et al., to remotely control various aspects of a laser source, such as the wavelength selection unit (etalons). Additionally, modifying computer controllers (such as 126 in Rieger et al.) to be responsive to a remote control is standard in the art.

Regarding Claims 38, 42, 47, 52, 59, 66, 72, 80, 86, 94, Rieger et al. teach in column 6 lines 65-67 100 ps pulses. Determining the optimum range involves routine skill in the art.

Claims 43, 48, 53, 60, 67, 73, 81, 87, and 95, to the extent taught and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Rieger et al. (U.S. Patent No. 5,790,574) in view of Unternahrer et al. (U.S. Patent No. 6,404,787), as applied above to Claim 5, and further in view of Amada et al. (U.S. Patent No. 5,710,787). See discussion on Claim 5 above. Additionally, Rieger et al. do not teach a remote controller. Amada et al. teach in Figure 1 a remote controller (11) to control the laser (1). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a remote control in Rieger et al., as taught by

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Amada et al., to remotely control various aspects of a laser source, such as the delay unit.

Additionally, modifying computer controllers (such as 126 in Rieger et al.) to be responsive to a remote control is standard in the art.

Claims 54, 55, 61, 62, 74, 75, 88, 89, 96, and 97, to the extent taught and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Rieger et al. (U.S. Patent No. 5,790,574) in view of Amada et al. (U.S. Patent No. 5,710,787). Regarding Claims 54, 61, 74, 88 and 96, Rieger et al. teach in column 6 lines 65-67 100 ps pulses but do not teach a remote controller. Amada et al. teach in Figure 1 a remote controller (11) to control the laser (1). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a remote control in Rieger et al., as taught by Amada et al., to remotely control various aspects of a laser source, such as the delay unit. Additionally, modifying computer controllers (such as 126 in Rieger et al.) to be responsive to a remote control is standard in the art.

Regarding Claims 55, 62, 75, 89 and 97, Rieger et al. do not teach a remote controller. Amada et al. teach in Figure 1 a remote controller (11) to control the laser (1). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a remote control in Rieger et al., as taught by Amada et al., to remotely control various aspects of a laser source, such as the intensity (i.e. amplifiers). Additionally, modifying computer controllers (such as 126 in Rieger et al.) to be responsive to a remote control is standard in the art.

Claims 68, 76, 82, 90, and 98, to the extent taught and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Rieger et al. (U.S. Patent No. 5,790,574) in view of Rieger et al. (5,742,634). Rieger et al. '574 teach in Figure 12 producing second harmonic wavelengths (112), but do not teach third, fourth, or fifth harmonics. Rieger et al. '634 teach in

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Figure 6 that fourth harmonic beams may be produced. It would have been obvious to one of ordinary skill in the art at the time of the invention to use higher wavelength harmonics in Rieger et al. '574, as taught by Rieger et al. '634, to extent the laser wavelength into the visible and the ultra-violet. (See Rieger et al. '634 column 5 lines 44-59). Producing additional harmonics, such as third and fifth harmonics, requires a similar structure.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US 5,852,621; US 5,862,827; US 6,574,250; US 5,539,764; US 5,847,863; US 6,373,864; US 6,549,267; and US 5,987,042.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davienne Monbleau whose telephone number is 703-306-5803. The examiner can normally be reached on Mon-Fri 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on 703-308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Davienne Monbleau

DNM
June 22, 2003

Paul Ip

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